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Listing of Claims

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The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

Claim 1 (currently amended): An image reproducing and forming apparatus comprising:

an ejection head configured to eject a liquid droplet from a nozzle to form an image on a medium;

a driving signal generating unit configured to generate a driving ~~signal having a~~ waveform that ~~causes the ejection head to operate at a driving frequency other than the natural frequency of the ejection head~~ includes an ejecting pulse for causing the liquid droplet to be ejected from the nozzle and another pulse, and to select a desired waveform from the driving waveform to produce a driving signal, the driving signal generating unit being further configured to produce a non-ejecting pulse making use of different portions of the driving waveform, the non-ejecting pulse having a pulse width greater than that of the ejecting pulse, while producing energy for not ejecting the droplet; and

a driving unit configured to drive the ejection head based on the driving signal supplied from the driving signal generating unit.

Claim 2 (currently amended): The image reproducing and forming apparatus of claim 1, wherein the driving waveform includes first and second dummy pulses, and the driving signal generating unit produces the driving signal including a non-ejecting pulse that produces energy for not ejecting the droplet, and the driving unit applies the non-ejecting

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~~pulse to the ejection head in a non-printing range in order to drive the ejection head at the driving frequency other than the natural frequency of the ejection head. making use of a portion of the first dummy pulse and a portion of the second dummy pulse.~~

Claim 3 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the driving waveform includes a dummy pulse and the driving signal generating unit produces the non-ejecting pulse, making use of a portion of the dummy pulse and a portion of the an ejecting pulse of the driving signal.

Claim 4 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the driving signal generating unit produces the non-ejecting pulse that draws in a meniscus of the nozzle.

Claim 5 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein signal generating unit produces the non-ejecting pulse that pushes out a meniscus of the nozzle and has a pulse width smaller than a period of pressure-induced resonance in a liquid chamber of the ejection head.

Claim 6 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the non-ejecting pulse has a falling edge with a first rate of voltage change and a rising edge with a second rate of voltage change that is smaller than the first rate of voltage change.

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Claim 7 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the non-ejecting pulse includes a first portion that draws in a meniscus of the nozzle with a first rate of voltage change and a second portion that restores the meniscus of the nozzle with a second rate of voltage change smaller than the first rate of voltage change.

Claim 8 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the non-ejecting pulse includes a first waveform that pushes out a meniscus of the nozzle and a second waveform that follows the first waveform to draw in the meniscus of the nozzle, the first waveform having a pulse width smaller than a resonant frequency of a liquid chamber of the ejection head.

Claim 9 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the driving signal includes a first non-ejecting signal inserted at a beginning of the driving signal and a second non-ejecting signal inserted at an end of the driving signal.

Claim 10 (currently amended): The image reproducing and forming apparatus of claim [[2]] 1, wherein the ejection head includes an actuator for producing a pressure to eject the droplet, and the driving signal including the non-ejecting pulse is applied to the actuator.